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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,499	02/20/2004	George Gustave Zipfel JR.	Zipfel 1	7599
7590 Ronald D. Slusky 353 West 56th St.-Suite 5L New York,, NY 10019-3775		03/09/2007	EXAMINER SHINGLETON, MICHAEL B	
			ART UNIT 2815	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/09/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/783,499

Applicant(s)

ZIPFEL ET AL.

Examiner

Michael B. Shingleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-42, 52-58 and 63-69 is/are pending in the application.
- 4a) Of the above claim(s) 12, 18, 27-29, 40 and 52-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 13-17, 19-26, 30-39, 41, 42 and 63-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-5, 7-9, 13, 17, 19, 20, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. An example of an omnibus claim is “A device substantially as shown and described”. Claim 1 of the instant application is reproduced below:

1. (Currently Amended) A switching amplifier adapted to drive at least first and second reactive loads with first and second switching signals, respectively, each of said first and second switching signals having respective switching band components and at least one respective baseband component, the baseband components of the first and second switching signals being such that, and said loads being interconnected in such a way that, the sum of the values of the instantaneous currents through said each load is substantially constant,  
substantially all of said at least one baseband component of said first switching signal being a current that flows into said first reactive load and substantially all of said at least one baseband component of said second switching signal being a current that flows into said second reactive load,  
wherein at least one of said reactive loads is a transducer.

Just like in “A device substantially as shown and described” there is no positive limitation of the structure recited (See MPEP 706.03(d)). There is just no structure. A device refers to an apparatus but it does not set forth what structure makes up that apparatus. In the instant case the device “as shown and described” is recited as having the intended use of being “adapted to” drive a load with first and second switching signals but the details of the load is not the structure of the apparatus that is being claimed. Applicant merely intends to connect a particular load to the apparatus. What is being claimed is suppose to be the structure of the switching amplifier, however, since there is no positive limitation of what that structure for the switching amplifier is, this claimed structure can only be read as “substantially shown and described” and therefore it is unclear what structure is to be included or excluded by the claim

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language. That is all applicant is setting forth with such an omnibus claim such as claim 1 of the instant invention. Just like in the example set forth in the MPEP surely the specification shows and describes at least one embodiment of the device that can be used in a particular way or with a particular something, but what structural limitations the claim is to be limited too is unclear. See *Ex parte Fressola*, 27 USPQ2d 1608 (Bd. Pat. App. & Inter. 1993). Apparatus claims must be distinguished from the prior art in terms of structure rather than function. See *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) and MPEP 2114.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 recites that the amplifier includes the structure of first and second paths i.e. electrical lines, and these electrical lines "contains" the first and second loads. However this claim is contradictory to base claim 9 wherein the first and second loads are excluded from the structure of the amplifier. Therefore the scope of the claim is unclear for the claim both claims that the first and second loads are not apart of the amplifier and are a part of the amplifier at the same time.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

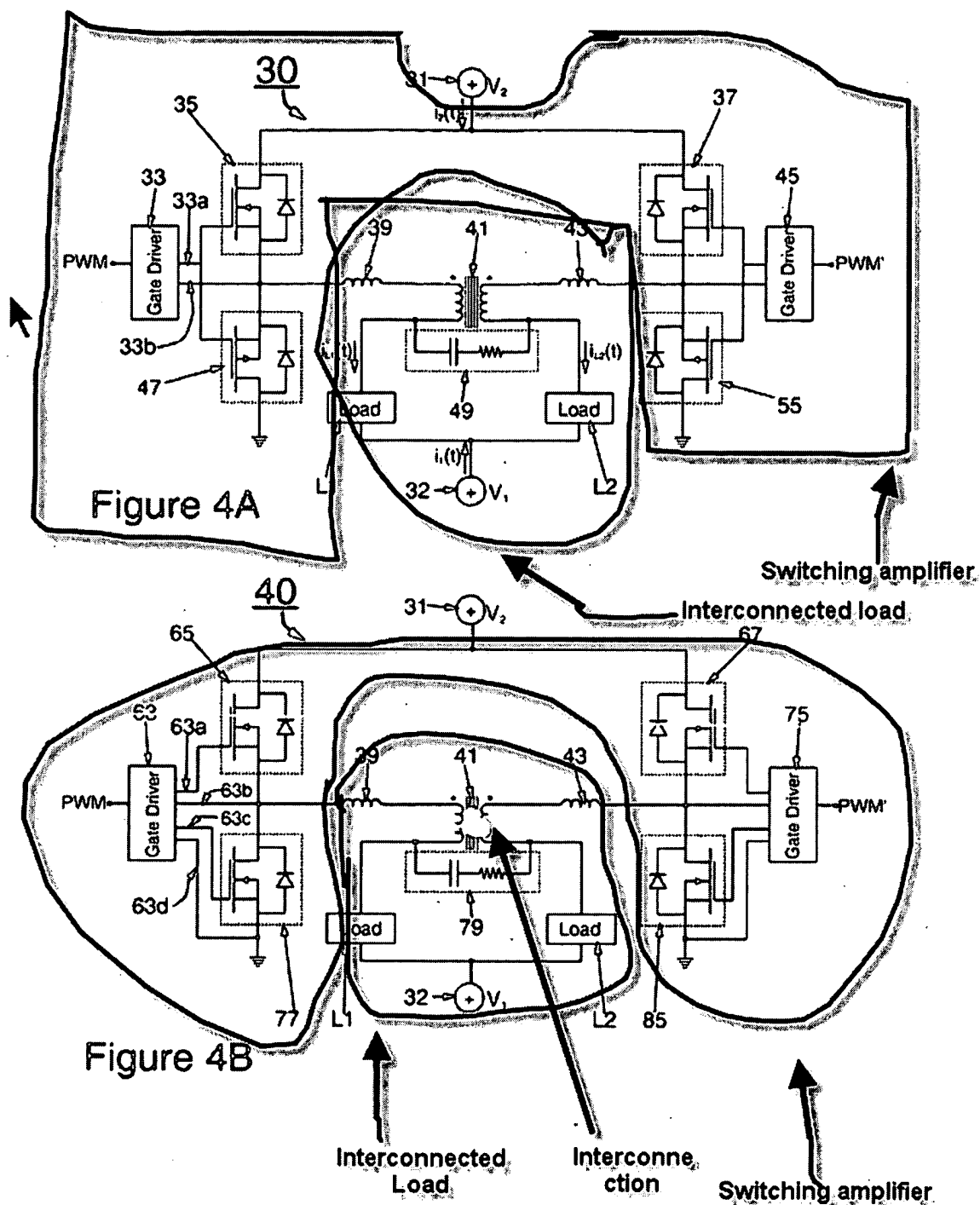
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-11, 13-17, 19-26 and 30-33 in so far as understood are rejected under 35 U.S.C. 102(e) as being anticipated by Pro et al. US 6,985,034 or Prokin WO 01/01554 (Pro). The following describes refers to the passages in the US '034 patent. However, the WO Prokin is the equivalent of the US '034 and the passages of this are also present but in different areas of the document.

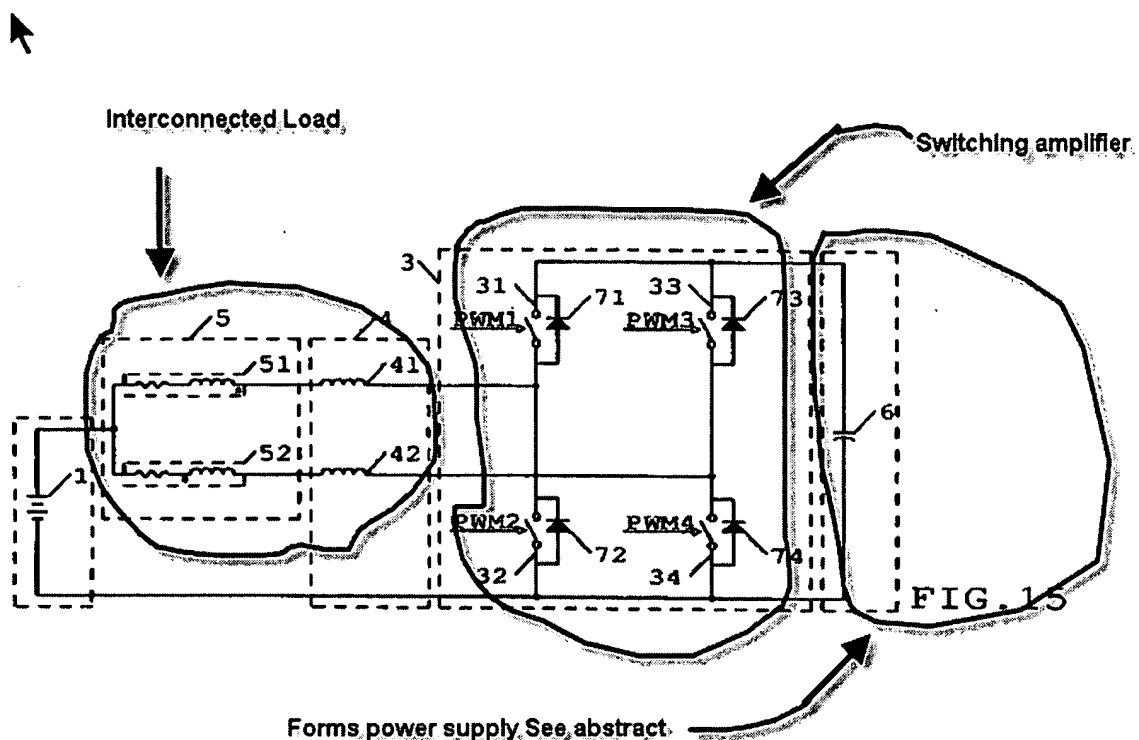
1. (Currently Amended) A switching amplifier adapted to drive at least first and second reactive loads with first and second switching signals, respectively, each of said first and second switching signals having respective switching band components and at least one respective baseband component, the baseband components of the first and second switching signals being such that, and said loads being interconnected in such a way that, the sum of the values of the instantaneous currents through said each load is substantially constant,  
substantially all of said at least one baseband component of said first switching signal being a current that flows into said first reactive load and substantially all of said at least one baseband component of said second switching signal being a current that flows into said second reactive load,  
wherein at least one of said reactive loads is a transducer.

As noted above the subject matter of many if not all of the claims are directed toward the structure of a *switching amplifier* and not the structure of the load. Thus the examiner is rejecting the structure of the apparatus claimed and not the structure of the load. The examiner has again reproduced exemplary claim 1 above and as recited in the above 35 USC 112 rejection it is not clear what structure applicant is trying to claim. In this claim and claims like it the load is connected in such a way to cause the newly claimed functions like “the sum of the values of the instantaneous currents through said each load is substantially constant”. Again the interconnected load structure is not what applicant will be able to exclude others from making should the claims be allowed but the structure of the structure of the amplifier itself. Again it is not clear what structure of the switching amplifier is being claimed in the omnibus claims as indicated in the above 35 USC 112 second paragraph rejection. The examiner can only go by what is “shown and described” in the specification.



Above shows the elected invention of Figures 4a and 4b. The interconnected load for the switching amplifier is shown above. While the claim lacks any detail of the switching amplifier itself, the examiner has attempted to apply art to these omnibus claims. The examiner has cited Prokin of record for

the switching amplifier is the same as that noted above. Below the examiner has provided a copy of Figure 15 of Prokin.



As recited by Prokin the bridge capacitor 6 supplies the power for the switching amplifier (See the abstract and the relevant text in the specification of Prokin.). As one can see from the above drawings the switching amplifier of Prokin is the same structure as that of applicant's elected invention. Note the four transistors. Thus the claimed structure to the switching amplifier is anticipated by Prokin in so far as the claims are understood. Note that the switching amplifier has output lines to the interconnected load and thus these are means for applying the baseband components. Note the common power supply node of element 1 of Prokin. Note that the switching amplifier of Prokin has "at least one power supply terminal" in the bridge capacitor or element 1 as set forth by at least claim 14. The four transistors like that of applicant's four transistor structure switching amplifier produces an alternating polarity of currents (See claim 22 of the instant application.). The use of PWM signals do not define any switching amplifier structure but never the less Prokin has PWM signals applied to the four transistors that make up the switching amplifier structure. The output lines are the means for supplying the two switching signals to

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the interconnected load (See claim 24 of the instant application.) The examiner contends that while the load set forth in the claims is not part of the claimed structure of the switching amplifier, if one were to connected the interconnected load to the switching amplifier of Prokin this would result in the combination functioning exactly as that of applicant's combination of switching amplifier and interconnected load. Thus the switching amplifier structure meets the claimed switching amplifier structure set forth in the above indicated claims.

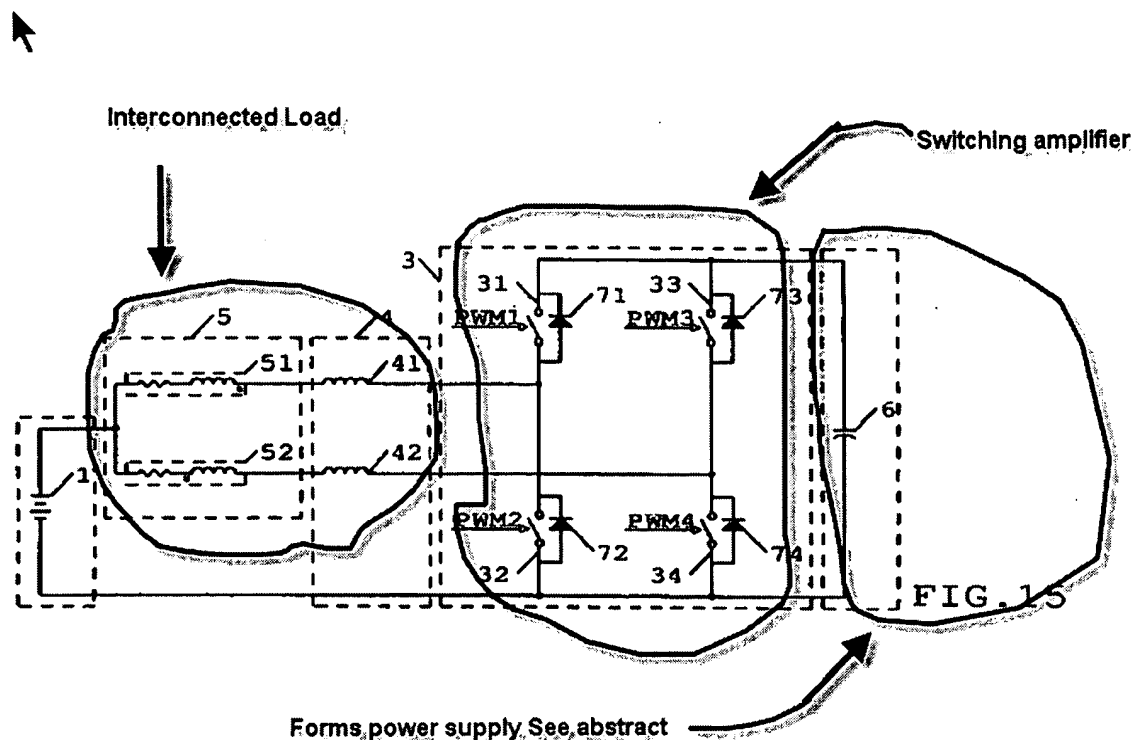
***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34, 35 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pro et al. US 6,985,034 or Prokin WO 01/01554 (Pro). The following describes refers to the passages in the US '034 patent. However, the WO Prokin is the equivalent of the US '034 and the passages of this are also present but in different areas of the document.





As can be seen from Figure 15 of Prokin the apparatus has two circuit paths that include at least a reactive load of 41, 42, 51 or 52. The switching amplifier is identical to that claimed as noted in the above rejection(s). There is a PWM generator or drive as indicated by the PWM signals in Prokin. Note that the loads of Prokin do form at least one transducer as elements 51 and 52 are voice coils (See column 8, around line 22). Also note that the common node of the loads of Prokin is connected to the DC voltage source 1 in the same manner that the common node of the loads L1 and L2 are connected to the DC voltage source  $V_1$ . Prokin is silent on the specific circuit values that enables the recited function where substantially all of the current at baseband frequencies flowing in the two circuit paths flows through the respective reactive load. This is merely defining the workable range for the arrangement. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the values of these components so as to ensure the claimed functional language is provided for as these functions are merely part of the workable / optimum range for the device and it has been long held that where the general conditions of a claim are disclosed in the prior art discovering the optimum/workable range involves only routine skill in the art.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pro et al. US 6,985,034 or Prokin WO 01/01554 (Pro) as applied to claim 34, 35 and 41 above, and further in view of Ogushwitz 5,235,559 (Ogushwitz).

Prokin disclose the basic amplifier structure as claimed but lacks the mentioning that the transducer is for acoustic sonar uses. However, the use of a speaker underwater is commonly known as a sonar transducer. See column 4, of Ogushwitz.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the arrangement of Prokin in an underwater environment because as the Prokin references are silent on the exact construction of the transducers 51 and 52 one of ordinary skill in the art would have been motivated to use any art-recognized equivalent transducer such as the one taught by Oguchwitz.

Claims 36-39 and 63-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pro et al. US 6,985,034 or Prokin WO 01/01554 (Pro) as applied to claim 34, 35 and 41 above, and further in view of Sawashi US 6,653,897 (Sawashi).

Prokin does not show the use of a common-mode inductor. However, the use of a common mode inductor in a switching arrangement is common place so as to filter out the common mode component. See elements 34A and 34B of Figure 3 of Sawashi.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a common-mode inductor in Prokin so as to filter out the common-mode component as taught by Sawashi.

Claims 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pro et al. US 6,985,034 or Prokin WO 01/01554 (Pro) and Sawashi as applied to claim 34-39, 41 and 63-38 above, and further in view of Ogushwitz 5,235,559 (Oguchwitz).

Prokin disclose the basic amplifier structure as claimed but lacks the mentioning that the transducer is for acoustic sonar uses. However, the use of a speaker underwater is commonly known as a sonar transducer. See column 4, of Ogushwitz.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the arrangement of Prokin in an underwater environment because as the Prokin references are silent on the exact construction of the transducers 51 and 52 one of ordinary skill in the art would have been motivated to use any art-recognized equivalent transducer such as the one taught by Oguchwitz.

Applicant's arguments with respect to the claims of record have been considered but are moot in view of the new ground(s) of rejection.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker, can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS  
March 2, 2007

  
Michael B. Shingleton  
Primary Examiner  
Group Art Unit 2815